

Four storms were identified as having occurred in 1883. Tracks for these storms are presented in Fig. 3.

Storm 1, 1883 (Aug. 18-28).

The following information was found in relation to this storm: 1) Bark "B.F. Watson", Aug. 19, about lat. 21 28 N., long. 58 30 W. reported threatening weather, barometer falling gradually, N.N.E. wind blowing in strong gusts and accompanied by heavy rain; 10 A.M., N.N.W. wind with heavy rain, blowing a gale, barometer 29.73 inches; 1 P.M., barometer 29.70 inches, W.N.W. wind; 2 P.M., barometer 29.65 inches, wind blowing in terrific gusts and high confused sea running; 4 P.M., barometer 29.68 inches wind moderating and barometer rising, weather clearing (Monthly Weather Review, Aug. 1883). 2) U.S. steamer "Galena". On Aug. 20 was in lat. 24 40 N., long. 61 26 W. and reported as follows: 1 A.M. Aug. 19, barometer 29.95 inches, falling slowly, wind N.E. force 6-7; 10 A.M., barometer 29.83 inches, wind N.E. force 10, sea becoming heavy; 11 A.M., barometer 29.83 inches, wind E.N.E. force 10, 1 P.M., barometer 29.75 inches, wind E. by N. force 10, very heavy squalls and rough seas; 2 P.M., barometer 29.57 inches, wind E. by S. force 10, wind hauling gradually to S.; 5 P.M., barometer 29.47 inches, wind S.E. 1/4 E. force 10, strong cyclone blowing, wind hauling slowly to S.; 6 P.M., barometer 29.47 inches, wind S.E. force 10, frequent lulls followed by heavy gusts, heavy and irregular sea; 9 P.M., barometer 29.63 inches, wind S.S.E. force 10, barometer rising; 11 P.M., barometer 29.72 inches, wind S. by E. force 10, wind hauling to S. and moderating slightly; 3 A.M. Aug. 20, barometer 29.79 inches, wind S. force 9, moderating; 5 A.M., barometer 29.87 inches, wind S.S.E. force 8, "very heavy squall of wind and rain" from S.S.E. from 4 to 5:30 A.M.; 6 A.M., barometer 29.91 inches, wind S.S.E. force 7, wind and sea moderating (Monthly Weather Review, Aug. 1883). 3) Steamship "Flamborough", Aug. 19, lat. 24 N., long. 66 W., experienced heavy gales and lost spars and deck fittings (Monthly Weather Review, Aug. 1883). Author's note: Gales probably continued for several days. The New York Times, Aug. 23, 1883, p.3, col.6, stated that this vessel, which was coming from Barbados, arrived on Aug. 27 and reported very severe weather for the last 4 days on the voyage and that the wind blew hurricane force and the sea was very high and frequently swept over the decks. 4) Bark "Falkesesten", Aug. 20, lat. 28 10 N., long. 65 41 W., had a heavy N.E. gale, veering to S. and W., lasting 2 days, vessel lost several sails (Monthly Weather Review, Aug. 1883). 5) Brig "Helen O. Phianey", Aug. 21, in lat. 27 N., long. 66 W., took a hurricane from S. to W.N.W., lost foremast and all attached (Monthly Weather Review, Aug. 1883). 6) Brig. "Clara Jenkins". On Aug. 22, lat. 33 N., long. 67 W., was dismasted in a hurricane (Monthly Weather Review, Aug. 1883). 7) Brig "Daphne". Aug. 22, about 11 A.M. (4 P.M. Greenwich time), lat. 32 N., long. 70 W., took a hurricane which lasted with great violence until Aug. 24; wind E., then N.E. and gradually backing to S.W., barometer fell to 29.70 inches, the sea was very high and irregular (Monthly Weather Review, Aug. 1883) Author's note: The New York Times, Sept. 19, 1883, p.5, col.5, added that the "Daphne" left Savannah for Pernambuco (Brazil) on Aug. 15. 8) Bark "Emilia T", from Malaga, was caught in a hurricane on Aug. 23 at lat. 34 N., long. 68 W. The storm lasted for 24 hours (The New York Times, Sept. 3, 1883, p.8, col.2). Author's note: A similar statement was published by the Monthly Weather Review, Aug 1883, which added that the wind veered from S.E. by E.

to N.W. and that the vessel lost some sails . 9) Steamship "Britannia", Aug. 25, in lat. 38 15 N., long. 63 10 W., reported having encountered a hurricane from S.W. which suddenly changed around to N.E. and then to S.E. with very heavy sea and that the vessel shipped large quantities of water, damaged boats and lost sails (Monthly Weather Review, Aug. 1883). Author's note: The New York Times, Aug. 30, 1883 p.2, col.4, also published a similar note, but added that the ship was coming from Marseille and arrived at New York late Tuesday evening (Aug. 28), that the hurricane burst over the vessel at 7:30 A.M. Aug. 25 and that it was not possible to see a dozen feet from the ship in any direction. 10) Steamship "Republic", Aug. 25, 4:21 P.M. Greenwich time, in lat. 41 39 N., long. 60 29 W. At 8:2 (?) P.M., barometer 29.79 inches, wind S. force 4, heavy squalls of wind and rain; midnight, barometer 29.68 inches, wind E.S.E. force 8; 14 hr. 2 m., barometer 29.48 inches, wind shifted to E.N.E. and increased; 16 hr. 2 m., barometer 29.22 inches, wind veering to N. and blowing with hurricane force with heavy confused sea; 18 hr. 2 m., gale at its height, fierce squalls, barometer beginning to rise; 20 hr. 2m., barometer 29.44 inches, wind force 10, heavy confused sea; 24 hr. 0m., barometer 29.53 inches, weather moderating, wind veering to N.W. Ship's position on Aug. 26: lat. 42 32 N., long. 55 W. (Monthly Weather Review, Aug. 1883). Author's note: The hours given (presumably all in Greenwich time) are believed to be somewhat confusing, but probably 14 hr. 2 m. means 2:02 A.M. etc., being 24 hr. 0m. midday Aug. 26. Nevertheless, the vessel encountered the height of the storm during the night of Aug. 25-26 (local time). 11) The steamer "Jersey City" , from New York, arrived at Bristol and reported that on Aug. 26, in the Atlantic Ocean, about lat. 44 N., long. 49 W., experienced a cyclone (The Times, London, Sept. 8, 1883, p.6, col.6). 12) On Aug. 26, the "State of Nevada", in lat. 45 43 N., long. 49 15 W., reported barometer 28.90 inches, wind E.S.E. force 9; at 9 A.M. (Greenwich time) it began to blow strongly from the S. and veered to E.S.E.; at noon, the wind suddenly shifted to N.W. and continued blowing very hard until 2 P.M. (Monthly Weather Review, Aug. 1883). 13) On Aug. 26 the steamship "Pennsylvania", in lat. 45 28 N., long. 50 W., reported barometer 28.98 inches, wind N.N.E. force 10, thick and sultry weather (Monthly Weather Review, Aug. 1883). 14) The steamship "Finchley", in lat. 47 20 N., long. 47 40 W., reported a strong N.E. gale, veering to N. and N.W. with an uncorrected barometer of 28.80 inches (Monthly Weather Review, Aug. 1883). Author's note: Although no date was given, this observation should correspond to Aug. 26. 15) Boston, Sept. 11. Barkentine "Joseph Baker", from Cadiz, encountered a hurricane at lat. 43 52 N., long. 41 39 W. on Aug. 25 (The New York Times, Sept. 12, 1883, p.2, col.4). Author's note: The barkentine-hurricane encounter should have occurred late on Aug. 26 and not on Aug. 25. 16) Steamship "Rotterdam", Aug. 26, lat. 47 40 N., long. 43 20 W., encountered a gale of great fury which blew from S.W. to W. (The New York Times, Sept. 3, 1883, p.8, col.2). 17) Boston, Aug. 31. A dispatch from St. John, Newfoundland, indicated that a fleet of U.S. vessels which arrived there last night reported that there was a violent storm off the Great Banks on Sunday last (Aug. 26). The gale rose from the E. at 8 A.M. It is computed from all sources of information that 100 dories and 80 men succumbed to the storm (The New York Times, Sept. 1, 1883, p.1, col.7). 18) New York, Sept. 5. Violent storms are reported from the coast of Newfoundland. Immense damage has been done to shipping and the loss of life is described as appalling. 30 vessels are missing and the French fishing fleet has suffered terribly (The Times, London, Sept. 6, 1883, p.3, col.4). Author's note: This item might also refer to a second storm that passed near Newfoundland on Aug. 30. 19) Steamship "Habsburg" reported: Aug. 27, 2:40 A.M., barometer 29.59 inches, wind S.S.E. force 7; 3:40 A.M., lat. 48 20 N., barometer 29.45 inches,

wind S.E. force 8; 4:40 A.M., wind S. force 10; 5:40 A.M., wind S.W. force 10; 6:40 A.M., wind W.S.W. force 9, sea very heavy and irregular; from 6:40 to 10:40 A.M., wind W.S.W. force 8, barometer rising (Monthly Weather Review, Aug. 1883). Author's note: The New York Times, Sept. 3, 1883, p.8, col.2, stated that the "Habsburg" had a hurricane at lat. 48 N., long. 40 W. on Aug. 26 (not on Aug. 27). The position given by the newspaper is roughly the same the Monthly Weather Review, Aug. 1883, indicated for the "Habsburg" at 3:40 A.M. Aug. 27, a fact that suggests that the observations taken on board the vessel are expressed in Greenwich time. 20) Steamship "British Princess", about lat. 49 20 N., long. 37 20 W., Aug. 27, from 10:30 A.M. to 2:30 P.M. (Greenwich time), experienced a heavy gale from W.S.W., W. and N.W., barometer 29.41 inches (Monthly Weather Review, Aug. 1883). 21) By Aug. 28, the depression had moved northeastward to about lat. 56 N., long. 21 W., the region of least pressure indicated by the isobar of 29.50 inches (Monthly Weather Review, Aug. 1883).

The content of some of the items above suggested the need for some modification along the track indicated in Neumann et al. (1993) over the period Aug. 18-20; however, the track for the period Aug. 21-28 was found to be satisfactory on the basis of the remaining items above. The author of this study estimated a 7 A.M. Aug. 18 position near 19.5 degrees N, 51.0 degrees W. on the basis of backward extrapolation along a smooth curve starting from his 7 A.M. Aug. 19 estimated position near 21.3 degrees N., 57.5 degrees W., which was primarily based on items 1) and 2). The author's 7 A.M. Aug. 20 estimated position was near 24.0 degrees N., 64.0 degrees W. and was based on information in item 2) and on space-time continuity. 7 A.M. positions given by Neumann et al. (1993) over the period Aug. 21-28 were kept unchanged and, together with the author's positions just mentioned, were used in preparing the track for Storm 1, 1883 which is displayed in Fig. 3.

All indications suggest the storm to have reached full hurricane status.

Storm 2, 1883 (Aug. 24- Sept. 2).

The following information was found in connection with this storm: 1) Bark "N. Boynton", Aug. 24, lat. 24 N., long. 64 W., took a heavy squall with rain, the wind increased to hurricane force, the vessel lost boats, stove bulwarks and had decks swept (Monthly Weather Review, Aug. 1883). Author's note: The New York Times, Sept. 6, 1883, p.2, col.4, added that at 10 P.M., the vessel shipped a heavy sea. 2) Brig "Maggie Glen", Aug. 25, lat. 25 15 N., long. 64 59 W., encountered a hurricane, vessel thrown on her beam ends and abandoned. Capt. Knock reported that this was the most violent hurricane he ever experienced (Monthly Weather Review, Aug. 1883). Author's note: The New York Times, Sept. 12, 1883, p.2, col.4, added that the crew was brought to Yarmouth, Nova Scotia, by the brigantine "Boston Marine". In addition, the newspaper stated that the vessel encountered the hurricane on the morning of Aug. 26 (not on Aug. 25). 3) Bark "Paolina", Aug. 25, lat. 25 49 N., long. 62 22 W., took a hurricane from N.W., veering to S.W. and W., lasting until Aug. 28 in lat. 28 42 N., 68 02 W., lost and split sails (Monthly Weather Review, Aug. 1883). Author's note: If the wind directions given were correct, long. 62.22 W. for Aug. 25 would appear to be too far east on the basis of information in other items. A longitude around 65 degrees W. would look more reasonable. 4) The ship "Eclipse", while following the steps of the storm from lower latitude, on Aug. 28, in lat. 29 40 N., long. 64 W., hove to but in 24 hours the weather cleared and the wind hauled to S.W. (Monthly Weather Review, Aug. 1883). Author's note: This ship appears to have

followed the storm from an unspecified location in the Atlantic near lat. 16 N. (longitude unknown) on Aug 19. 5) Bark "Alsen", Aug. 28, lat. 32 N., long. 71 W., had a strong N.E. gale, lasting 24 hours (Monthly Weather Review, Aug. 1883). 6) Brig "Daphne", Aug. 28, lat. 35 07 N., long. 66 46 W. reported, 2:30 A.M., heavy S.E. gale which continued with great force until 2:30 A.M. Aug. 29, when it blew a hurricane (Monthly Weather Review, Aug. 1883). Author's note: The New York Times, Sept. 19, 1883, p.5, col.5, added that the vessel had a "tornado" (it should mean a hurricane) at 10 P.M. and that the barometer went down to 28.00 inches at the height of the gale. The time of the "tornado" occurrence suggested that the hours shown in the Monthly Weather Review, Aug. 1883 are expressed in Greenwich time. 7) At Bermuda the wind blew a fresh S.E. gale on Aug. 28 changing to a moderate S.W. gale on Aug. 29 (Monthly Weather Review, Aug. 1883). 8) Bark "Olga R", from Lisbon, reported that on Tuesday last (Aug. 28) was caught in a terrific E. gale which lasted for 16 hours (The New York Times, Sept. 2, 1883, p.8, col.5). 9) Schr. "John Simmons" reported that on Wednesday (Aug. 29), when S. of Cape Sable (Nova Scotia) the wind increased to a gale and the storm continued to be extremely violent for 7 or 8 hours, hardest at 8 P.M. (The New York Times, Sept. 3, 1883, p.1, col.7). 10) Bark "Berthe Roed", Aug. 29, lat. 37 N. long. 67 30 W., S.E. gale, veering to S.W. (The New York Times, Sept. 7, 1883, p.3, col.2). 11) Boston, Sept. 11. Ship "Rafael", Aug. 29, lat. 38 30 N., long. 68 30 W., encountered a hurricane which lasted 12 hours and in which shipped a heavy sea (The New York Times, Sept. 8, 1883, p.2, col.6). 12) Bark "Chignecto", Aug. 29, lat. 40 15 N., long. 65 W., had a severe S.S.E. gale, shifting to N.W. and blowing a hurricane force for 12 hours (Monthly Weather Review, Aug. 1883). 13) Steamship "State of Nevada" reported at 2 A.M. Aug. 29 (Greenwich time), light E. wind; 6 A.M., fresh E. wind with heavy showers; 10 A.M., moderate gale increasing rapidly; noon, lat. 41 02 N., long. 66 04 W., barometer 29.68 inches, gale increasing and veering to N.E. with constant rain; 2:45 P.M., blowing a whole gale from N.E. with very high sea; 7 P.M., wind moderating and veering to W.; lowest barometer 28.98 inches at 4 P.M. (Monthly Weather Review, Aug. 1883). 14) Bark "Ankathor", Aug. 29, lat. 42 N., long. 65 W., S.S.E. hurricane veering to N.W. after 2 hours and continuing for 2 more hours. Barometer fell to 28.30 inches at the height of the storm (The New York Times, Sept. 6, 1883, p.8., col.4). 15) Bark "William Phillips", from Santander. Aug. 29, lat. 41 N., long. 63 W., experienced a hurricane which lasted 6 hours. Wind constantly shifted and decks were swept by heavy sea (The New York Times, Sept. 3, 1883, p.8, col.2). 16) Ship "Sameriane", Aug. 29, lat. 43 N., long. 63 W., experienced a hurricane which continued for 11 hours (The New York Times, Sept. 3, 1883, p.8. col.2). 17) Bark "Nova Scotia", Aug. 29, lat. 41 50 N., long. 61 57 W., set in a gale from E.N.E. with heavy rain. At 2 P.M. wind veered to E.S.E. and increased to a hurricane. At 8 P.M. the vessel shipped a heavy sea. At 9 P.M. the wind hauled to S.S.E. The foremast head was afterward carried away and everything above went over the side. The barometer then stood at 28.60 inches. At 6 A.M. Aug. 30, the wind veered to W. with hurricane force and tremendous sea and, by noon, the gale moderated (The New York Times, Sept. 5, 1883, p.4, col.7). 18) Steamer "Lampert", from Baltimore to London. Left Baltimore on Aug. 24 and on Aug. 29 (Wednesday) stormy weather set in. Afterward the storm grew worse and at 11 P.M. was at its height, which continued until daylight (The New York Times, Sept. 7, 1883, p.3, col.5). 19) Halifax, Sept. 10. Bark "Chapman" put in here last evening. While on her voyage from Pensacola to Amsterdam, on Aug. 28 stormy weather set in and the wind increased to E.S.E. gale, and in the evening of Aug. 29 to a hurricane with a tremendous sea running (The New York Times, Sept. 11, 1883, p.5, col.5). 20) Boston, Sept. 9. The returned bark "Harold

Haarfagen" reported having encountered a heavy gale lasting for 12 hours at 9:30 P.M. Aug. 29 over the Gulf Stream. The bark had left here from New Zealand on Aug. 25 (The New York Times, Sept. 9, 1883, p.7, col.2). 21) Halifax, Sept. 9. Schr. "W.I. Williard" arrived here in distress, having encountered a gale at lat. 44 N., long. 56 W. on Aug. 29 (The New York Times, Sept. 9, 1883, p.7, col.2). 22) Halifax, Aug. 31. The steamer "Bryan Glas", from Pensacola to Barrow, reported that she felt the storm very severely from 5 P.M. Wednesday (Aug. 29) to daylight the next morning (The New York Times, Sept. 1, 1883, p.8, col.5). 23) The steamship "Rotterdam" encountered a hurricane at lat. 42 50 N., long. 57 50 W. on Aug. 29, which lasted for 12 hours (The New York Times, Sept. 3, 1883, p.8, col.2). Author's note: The Monthly Weather Review, Aug. 1883, added that, at 4 A.M. Aug. 30, reported a barometer reading of 29.20 inches, wind S.W. force 10, perfect storm, high cross sea and that at 7 A.M. the barometer reading was 29.03 inches, wind W. gradually decreasing. At noon, the vessel was at lat. 42 45 N., long. 59 24 W. (It was not specified whether the observations and the noon position were given in local or in Greenwich time). 24) Steamship "British Princess". 10 A.M. Aug. 30 (Greenwich time) a strong gale set in, force 9 to 10, and continued till 3:40 P.M. when it began to moderate; minimum barometer reading during the gale was 29.38 inches, wind S.W., at 5:40 A.M. the barometer had read 29.75 inches; the wind afterward shifted to W.N.W. force 9 to 10; noon Aug. 30 position: lat. 40 30 N., long. 56 W. (Monthly Weather Review, Aug. 1883). 25) Steamship "Fulda" reported at 3 A.M. Aug 30 (Greenwich time) that the wind began to back (?) and increased in force. The following observations were taken during the gale: 4 A.M., barometer 29.79 inches, wind S.E. force 6, heavy rain, lightning at intervals; 8 A.M., barometer 29.16 inches, wind S.S.E. force 8; 9 A.M., barometer 29.20 inches, wind S.S.W. force 9-10, heavy and breaking sea; 10 A.M., barometer 29.25 inches, wind S.W. by W. force 9-10; 11 A.M., barometer 29.36 inches, wind S.W. force 9-10; noon, barometer 29.41 inches, wind S.W. by W. force 8-9, position at lat. 43 26 N., long. 58 47 W.; 4 P.M., barometer 29.81 inches, wind W. force 7, moderating (Monthly Weather Review, Aug. 1883). 26) Steamship "Habsburg". 3:46 A.M. Aug. 30, barometer 29.89 inches, wind S.E. force 7; 7:50 A.M., barometer 29.40 inches, wind S.E. force 9; 8:50 A.M., barometer 29.23 inches, wind S. force 9, minimum (pressure); 9:50 A.M., wind S.W. force 10; 10:50 A.M., wind S.W. force 10; from 10 A.M. the barometer began to rise and at 11:50 A.M. it read 29.50 inches, wind W.S.W. force 10; at 0:47 P.M. (near lat. 43 15 N., long. 57 20 W., wind decreasing; 3:47 P.M. barometer 29.70 inches; wind W. by S. force 8; 7:51 P.M., barometer 29.94 inches, wind W.N.W. force 6; a very heavy sea prevailed during the storm (Monthly Weather Review, Aug. 1883). Author's note: The hours given above are believed to be in Greenwich time; however, this was not specifically stated. In addition to the Monthly Weather Review, Aug. 1883, The New York Times, Sept. 3, 1883, p.8, col.2, also published that the "Habsburg" encountered the storm on Aug. 30. 27) Halifax, Aug. 29. The heaviest storm since the gale of last March prevailed here tonight. The wind is blowing with great violence from S.E. and rain is falling in torrents (The New York Times, Aug. 30, 1883, p.2, col.4). 28) Halifax, Aug. 30. During the night of the gale, about midnight (Aug. 29-30) the signal staff on the citadel was carved away below the lower crosstrees and fell to the ground. Numerous boats and two yachts were sunk or stranded (The New York Times, Aug. 31, 1883, p.5, col.2). 29) New York, Sept. 5. Violent storms are reported from the coast of Newfoundland. Immense damage has been done to shipping and the loss of life is described as appalling. 30 vessels were missing and the French fishing fleet has suffered terribly (The Times, London, Sept. 6, 1883, p.3, col.4). Author's note: This item might refer as well to the storm of Aug. 26, which also passed near Newfoundland.

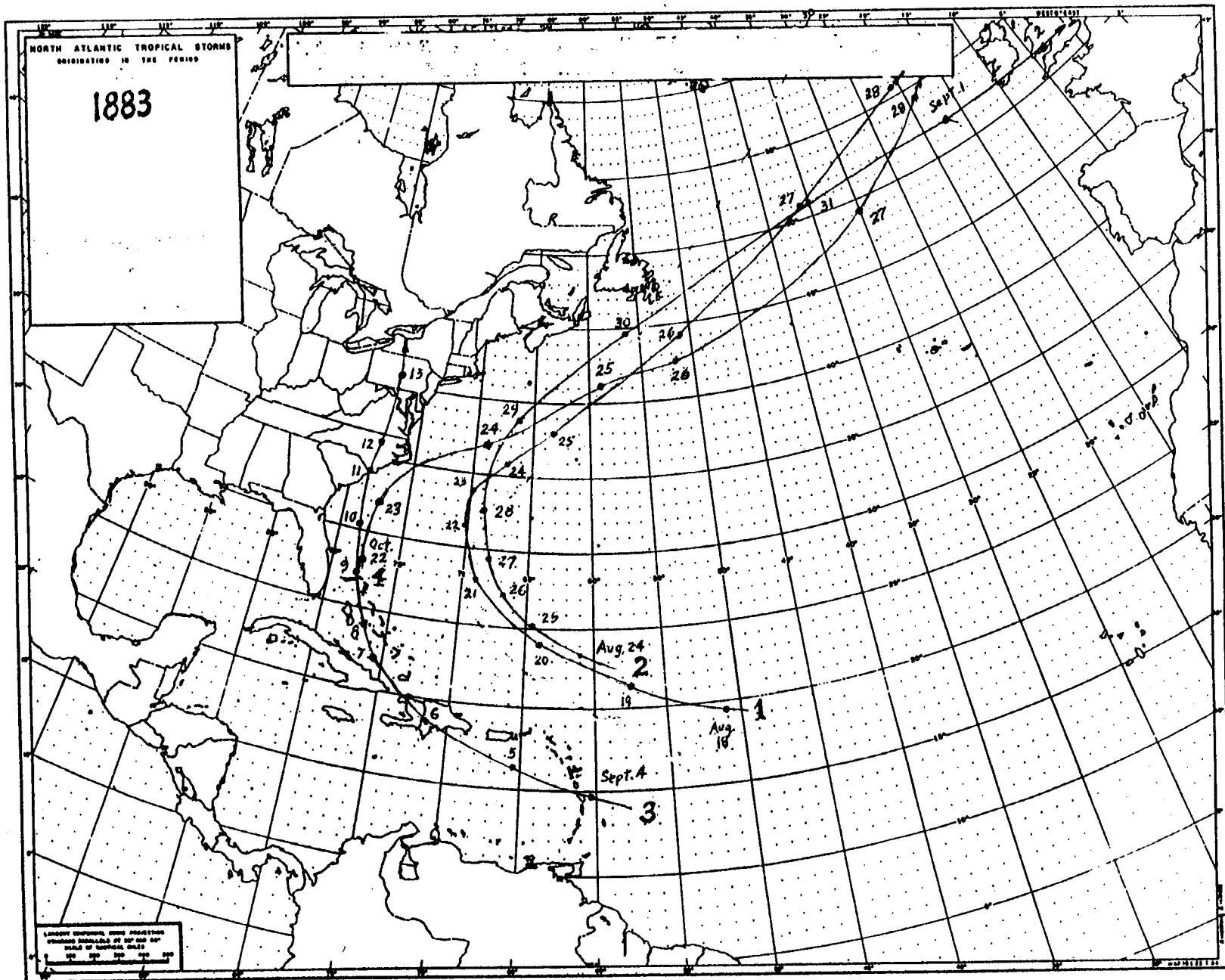


Fig. 3

30) Steamship "Arizona". 12:08 P.M. Aug. 30 (Greenwich time), lat. 47 55 N., long. 45 22 W., wind S.S.E. force 4, barometer falling rapidly and wind increasing; 9 P.M., barometer 29.42 inches, wind S. force 7; 2 A.M. Aug 31, barometer 29.32 inches, wind hauled to W.S.W. force 9, very heavy sea; 2:30 A.M., wind suddenly hauled to N.E. force 7, barometer rose even more rapidly than it had fallen; the weather became fine but the high westerly sea kept up (Monthly Weather Review, Aug. 1883). 31) Steamship "Weasland", 12:08 P.M. Aug. 31, lat. 49 15 N., long. 36 34 W. , barometer 29.23 inches, wind N.N.W. force 10, confused sea (Monthly Weather Review, Aug. 1883). Author's note: In spite of that it was not specifically stated, the hour given was probably expressed in Greenwich time. 32) This storm was probably identical with that reported by vessels between long. 30 W. and the British coast on Sept. 1 and 2; it appears to have lost none of its violence on nearing the coast (Monthly Weather Review, Aug. 1883). 33) Steamer "Bavarian" experienced a very severe gale lasting 12 hours in lat. 51 20 N., long. 15 50 W. on Sept. 1 (The New York Times, Sept. 12, 1883, p.2, col.4). 34) Steamer "Egyptian Monarch" arrived at the Thames from New York and reported on Sept. 1 a heavy gale from N., veering to N.W., blowing a hurricane with tremendous sea, lasting 14 hours (The Times, London, Sept. 6, 1883, p.8, col.6). 35) Weather chart for 6 P.M. Sept.2, showing a very deep depression (below 28.80 inches) over southern England. A text indicated that the 8 A.M. Sept 2 chart showed that the center advanced over the S.W. coasts from the Atlantic and that at Pembroke the mercury stood as low as 28.44 inches (The Times, London, Sept. 3, 1883, p.4, col.4).

Based on the content of the above items, the track for this storm which is shown in Neumann et al. (1993) was found to be reasonable for the period Aug. 24-30. However, the 7 A.M. Aug.31 position displayed in the above mentioned publication was slightly adjusted to the south in order to fit better the information in item 31) and to provide reasonable space-time continuity with the new 7 A.M. positions for Sept 1 and 2 that the author of this study has estimated while extending eastward the track in Neumann et al. (1993) on the basis of information in items 32) through 35). The modified position for 7 A.M. Aug. 31 was near 51.0 degrees N., 35.0 degrees W. and the author's estimates for 7 A.M. Sept. 1 and 7 A.M. Sept. 2 were near 52.0 degrees N., 17.0 degrees W. and near 52.0 degrees N., 3.5 degrees W., respectively. Fig. 3 shows the author's track for this storm.

Although item 4) suggested that the storm existed for several days before Aug. 24, no attempt was made to determine a track for it prior to that day because the available information was insufficient for undertaking such a task.

Based on barometer readings of 28.00 inches taken on board the "Daphne" (item 6) and of 28.30 inches taken on board the "Ankathor" (item 14) and also by the statement produced by Capt. Knock of the "Maggie Glen" (item 2), Storm 2, 1883 was a major hurricane.

The storm should have been in the process of becoming extratropical while traveling over the eastern Atlantic toward the British Isles.

Storm 3, 1883 (Sept. 4-13).

Abundant information was found in relation to this storm: 1) Brig "L.W. Armstrong", Capt. Alexander, at St. Pierre, Martinique. Forenoon, Sept. 3, barometer (aneroid) 30.06 inches, fine weather; 5 A.M. Sept. 4, barometer 30.04 inches, wind N.E., heavy swell began to come from W.N.W.; 6:30 A.M., barometer 30.04 inches, wind N., heavy rain squalls, sea increasing; 7:15 A.M., barometer 29.80 inches, wind N.N.W. force 7, very heavy rain at times; 7:45 A.M., barometer 29.70 inches, wind N.W. force 9; 8:30 A.M., barometer 29.54 inches, wind W. force

9, incessant rain, sea breaking very heavily; 9:30 A.M., barometer fluctuated so much that at first the captain thought it was broken since it fell to 28.20 inches and rose again to 29.02 inches, wind W. to W.S.W. blowing in furious gales; 10:30 A.M., steady W.S.W. wind with hurricane force. The captain stated that he did not have a chance to look at the barometer until 14:30 (2:30 P.M.) when it read 29.50 inches (Monthly Weather Review, Sept. 1883). 2) Lloyd's agent at Martinique reported that some 20 vessels went ashore in a gale and were wrecked (The Times, London, Sept. 7, 1883, p.8, col.2). Author's note: Names of the wrecked vessels were given in the agent's report. 3) Philadelphia, Oct. 2. Schr. Edward Black", which arrived from St. Pierre, Martinique this morning, reported the total destruction of all the shipping at St. Pierre with great loss of life by a furious hurricane which swept that place on Sept. 4. The hurricane came on in the morning when the vessels in port were anchored off the harbor receiving their cargoes from lighters (The New York Times, Oct. 2, 1883, p.1, col.6). 4) At Basseterre, Guadeloupe, all wharves were destroyed (Monthly Weather Review, Sept. 1883). 5) Steamship "Muriel", at St. Thomas, Sept. 5. The day began with a fresh breeze from E.N.E. and with a threatening appearance. At 4 P.M., the wind hauled to E.S.E. with heavy squalls and much rain. The barometer gave no indication of bad weather, particularly of the close proximity of a hurricane, as it fell only about 0.15 inch during the 24 hours (Monthly Weather Review, Sept. 1883). 6) Brig "Rising Sun", at San Juan de Puerto Rico. The barometer was slightly affected by the hurricane passing S. of the island on Sept. 5. While the storm was advancing towards the island the weather was threatening, the sky being covered with heavy black clouds, the wind blowing a moderate gale from N.E. to S.E. (Monthly Weather Review, Sept. 1883). 7) Santo Domingo. Midnight Sept. 5-6, wind from N.E.; 7 A.M. Sept. 6, wind suddenly veered to S.W., blowing with great fury and lasting until 10 A.M. Much damage was done at sea. The steamship "Foscolia", off Santo Domingo, sustained severe damages and a large number of small craft were lost and in nearly all cases all hands perished. With the exception of that sea rose before the wind, the hurricane gave no warning of her approach (Monthly Weather Review, Sept. 1883). 8) The steamship "Santo Domingo" brought additional news of the great hurricane on Sept. 6 in the West Indies. Three brigs were at anchor at the lower part of Santo Domingo; the three of them were lost. Capt. G.P. Davies was at the port of Azua on a schooner. According to him, the wind seemed to have blown from all quarters. The captain stated that he had a barometer at hand and saw it at 29.80 inches and falling (obvious this was not a minimum pressure). The Dutch sailing vessel "Persa" went into the harbor of Santo Domingo and was lost with only 2 survivors (The New York Times, Sept. 29, 1883, p.5, col.5). 9) Some observations taken on board the steamship "Belize". Sept. 5, 11 hours (Greenwich time), left Port Antonio, Jamaica, barometer (corrected) 29.87 inches; 21 hours, barometer 29.80 inches, fresh N.E. wind and N.E. sea; 9 hours Sept. 6, barometer 29.70 inches, moderate N.E. wind and squally; 13 hours, passed Cape Maisi light. barometer 29.64 inches; 17 hours, barometer 29.39 inches, strong N. gale with furious squalls and heavy rain, very heavy cross sea; 21 hours, barometer 29.41 inches, strong S.S.E. gale with rain at times and a high confused sea; 5 hours Sept. 7, barometer 29.58 inches, fresh S.E. gale, constant heavy rain and high S.E. sea; 7:30 hours, passed Castle Island lighthouse (Crooked Island); 9 hours, barometer 29.61 inches, strong S.E. wind, heavy sea and constant rain; 12 hours, passed Bird Rock light; 17 hours, barometer 29.62 inches, strong S.E. gale with furious squalls and vivid lightning; 21 hours, barometer 29.62 inches, strong S.E. gale with furious squalls, much vivid lightning and heavy rain, ship laboring heavily (Monthly Weather Review, Sept. 1883). Author's note: If hours were expressed in local time instead of in Greenwich time as alleged,

the agreement of these data with other information along the track would be much improved.

10) During Sept. 7 the hurricane moved slowly towards the N.N.W. along the western shores of the Bahamas, causing great loss of life along the Exuma cays. At Great Harbor Cay, 50 miles S.E. of Nassau, the wind blew with hurricane force from the E.N.E., veering with the sun to S.W., all fruit trees were uprooted and much damage was done (Monthly Weather Review, Sept. 1883).

11) The hurricane that visited Nassau and vicinity caused great loss of life. The schooner "Silver Spray" encountered the hurricane at Long Island and put the vessel on Sept. 7, but she was off on the following Sunday (Sept. 9) without damage. The "Carleton" left Nassau for Inagua via intermediate ports. While lying in the harbor of San Salvador on Friday night Sept. 7, the hurricane came on and the vessel struck on a reef (The New York Times, Sept. 27, 1883, p.5, col.3).

12) Report taken from The Nassau Guardian, Sept. 8. The weather was squally during the whole day yesterday (Sept 7). There were occasional showers during the evening and the sun, at setting, shed a lurid glare over the western sky. A breeze sprug up from E.N.E., increasing until midnight (Sept. 7-8) when a gradual fall of the barometer commenced. At 11 A.M. Sept. 8, the wind began to rise and the cyclone was at its height at 2 P.M., the barometer indicating 28.87 inches. It then began to rise; the wind veered to W.S.W. at 6:30 P.M., from where it blew for four and a half hours. Rain fell heavily nearly all day. There is scarcely a house which has not sustained damage. Walls, fences and trees were blown down in all directions and many of the houses of the poor completely prostrated. Many wharves are totally destroyed and others are greatly damaged (Monthly Weather Review, Sept. 1883).

13) Some observations taken by the lighthouse tender "Richmond", anchored near Nassau. Sept. 8, 1:30 P.M., barometer 29.98 inches (it should read 28.98 inches), N. wind; 1:45 P.M., barometer 28.90 inches, N.N.W wind; 2 P.M., barometer 28.87 inches, wind W.N.W., furious gusts; 3:30 P.M., barometer 29.03 inches; 4:40 P.M., barometer 29.30 inches, wind W. by S., furious gusts (Monthly Weather Review, Sept. 1883). Author's note: It is not clear whether or not the necessary corrections have been applied to the above observations.

14) List of nearly 100 vessels that have been totally wrecked or seriously damaged in this hurricane which was published by The Nassau Guardian on Sept. 15; the same newspaper also referred to 53 deaths having been reported (Monthly Weather Review, Sept. 1883). Author's note: Similarly, Tannehill (1938) stated that over 100 vessels were wrecked and 50 lives were lost in the Bahamas.

15) Mr. J. Peterson of the brig "Giles Loring" reported that on Sept. 9, between Abaco and Stirrup Cays, had a gale from E., ran on the Bahama banks for anchorage; anchored in four and a half fathoms; barometer 29.50 inches, blowing a hurricane; cut away spars to save vessel and cargoes. At 11 A.M. the wind suddenly shifted around to N.W. in a furious blast, covering the vessel with spray. Latter part of the day, fresh gale, wind W. Mr. Peterson also reported having been informed by wreckers that at the Biminis the wind blew from N. to N.W. a moderate gale (Monthly Weather Review, Sept. 1883). Author's note: Taking into account the storm evolution over and near the Bahamas, the correct day for the information in this item seems to be Sept. 8 instead of Sept. 9.

16) Savannah, Sept. 13. The steamer "Newport" was towed into Tybee Island this morning by the "Western Texas", the cabin badly damaged by a gale on Sunday night, Sept. 9 (The New York Times, Sept. 14, 1883, p.8, col.5).

17) Steamship "New York". Sept. 9, weather became squally; 3:30 A.M., Cape Canaveral bearing W., very heavy swell from E.S.E. to N.E., weather very threatening, barometer had fallen very slowly to 29.70 inches; 30 miles of Jupiter Inlet, wind had hauled from N.E. to W. by way of N., barometer still remaining at 29.70 inches; noon, Jupiter Inlet, barometer began to rise, clearing weather but still squally from the W. (Monthly Weather

Review, Sept. 1883). 18) Steamship "Rio Grande". Sept. 9, 5 A.M., 55 miles S.S.E. of Cape Canaveral, barometer began to fall very rapidly from 29.80 inches, wind breezing up from N.E., heavy rains and increasing swell from about E.; 6 A.M., the vessel was hauled off shore as it was considered safer to move from the immediate vicinity of the storm, the storm passed so far to the E. that the wind only reached a heavy gale and it was advancing northward so fast that that force only lasted till about 8 P.M. when breaking clouds and moderating wind indicated that the storm had passed (Monthly Weather Review, Sept. 1883). 19) New Orleans, Sept. 17. The steamer "Morgan City", from New York to New Orleans, encountered a hurricane off Frying Pan Shoals on Sept. 10 (The New York Times, Sept. 18, 1883, p.5, col.3). 20) The schooner "Pedro A. Grau" was abandoned at lat. 32 40 N., long. 77 10 W. on Sept. 13, the crew being picked up by bark "Augustine". The "Pedro A. Grau" encountered a hurricane from N.N.E. on Sept. 10 and sprung a leak (The New York Times, Sept. 21, 1883, p.5, col.4). 21) Bark "Wieland ", Sept. 9, lat. 29 34 N., long. 75 34 W., barometer 29.75 inches, wind E.S.E. force 7, thunder with squalls, high swell; Sept. 10, lat. 30 18 N., long. 76 18 W., barometer 29.55 inches, violent S.E. gale, rain squalls, lightning all around the horizon, sea from all directions; Sept. 11, lat. 31 31 N., long. 74 38 W., barometer 29.70 inches, wind S. force 8, S.S.E. swell; Sept. 12, lat. 32 05 N., long. 76 18 W., barometer 29.75 inches, wind S.W. by S., fine weather (Monthly Weather Review, Sept. 1883). Author's note: It was stated that the above observations were taken at 00 hours 8 minutes Greenwich time. 22) Steamer "City of Washingt'n" Sept. 9, 9 A.M.. lat. 29 30 N., long. 78 05 W., ship hove to, barometer 29.70 inches, wind blowing hard from E.S.E., raining hard; 8 P.M., barometer 29.30 inches, wind E., blowing a hurricane, heavy rain, ugly cross sea breaking over the ship; Sept. 10., 4 A.M., barometer 29.00 inches, wind N.E., blowing a hurricane, heavy rain, very heavy cross sea running breaking over the ship; 8 A.M., near lat.. 30 45 N., long. 78 52 W., barometer 29.05 inches, wind blowing hard from N.E.; noon, barometer 29.40 inches, wind N.; 4 P.M., barometer 29.60 inches, fresh N.W. wind (Monthly Weather Review, Sept. 1883). Author's note: The barometer reading of 29.00 inches reported by the "City of Washington" at 4 A.M. Sept. 10 looks suspicious because the N.E. wind reported at that time and also at 8 A.M. Sept. 10, having shifted to N. by noon Sept. 10, suggests that the vessel was closest to the storm center about 8 A.M. Sept. 10 and not around 4 A.M. Sept. 10. 23) Brig "J.L. Brown", from Matanzas, encountered a terrific hurricane on Sept. 10 and 11 at lat. 33 15 N., long. 75 40 W. (The New York Times, Sept. 19, 1883, p.5, col.5). 24) Charleston, Sept. 11. The steamer "Virginia", from Philadelphia (to this port), experienced a severe hurricane (The New York Times, Sept. 12, 1883) Author's note: The ship likely felt the storm on Sept. 10 continuing to Sept. 11. 25) Jacksonville. Sept. 9, brisk N.E. wind blowing in squalls, heavy rain at intervals, barometer falling slowly until 3 P.M. when it read 29.88 inches, after which it rose slightly; Sept. 10, barometer remained stationary, the N.E. wind backed to N.W. and moderated to a light breeze. Maximum velocity at Jacksonville was 22 mph. At St. Augustine, the wind was N.E. 40 mph and at Fort George Island, the wind was 30 mph (Monthly Weather Review, Sept. 1883). 26) Savannah, Ga., Sept. 10., wind backed from N. to N.W. and reached a velocity of 30 mph; Sept. 11, afternoon, lowest barometer 29.82 inches (Monthly Weather Review, Sept. 1883). 27) Charleston, Sept. 10, barometer falling gradually with high winds, rain during the afternoon; Sept. 11, brisk W. and N.W. wind; maximum velocity N. 31 mph; lowest barometer 29.66 inches (Monthly Weather Review, Sept. 1883). 28) According to incoming vessels, a heavy gale was blowing off Hatteras last Tuesday, Sept. 11 (The New York Times, Sept. 14, 1883, p.8, col.3). 29) Steamship "Belize". Sept. 10, 5 hours, barometer 29.70 inches, strong

S.E. wind, overcast; 9 hours, barometer 29.66 inches, strong S.E. gale, heavy rain, very heavy sea; 17 hours (about lat. 33 N., long. 74 W.), barometer 29.60 inches, very heavy S.E. gale, terrific squalls, very heavy cross sea (S.E. and S.W.); 21 hours, barometer 29.61 inches, S.S.E. gale, hard squalls, heavy cross sea; Sept. 11, 5 hours, barometer 29.66 inches, overcast, wind and sea decreasing; 9 hours, barometer 29.70 inches, fresh S.E. wind, fine weather, high sea (Monthly Weather Review, Sept. 1883) Author's note: The hours given are supposed to be in Greenwich time. 30) Bark "Alcira" reported that on Sept. 9 through 11, between lat. 35 01 N., long. 74 10 W. and lat. 36 32 N., long. 73 30 W., the wind blew in heavy squalls from all points of the compass, with a destructive sea running; the barometer fluctuated but it did not fall below 30.06 inches at any time (Monthly Weather Review, Sept. 1883). 31) Schr. "Norena" reported that from Sept. 8 through 13 (between lat. 31 N., long. 67 W. and lat. 39 N., long. 68 W.) experienced a very heavy swell commencing S.S.W. and running gradually around to W.; barometer ranged from 30.10 to 30.30 inches; wind E.S.E. to S.E., S. and S.W. force 3 to 4; weather very fine (Monthly Weather Review, Sept. 1883). 32) Bark "Aquidneck" encountered heavy N.E. to S.E. gales when off Hatteras from Sept. 9 through Sept. 11. Capt. Powell said that the barometer never fell below 30.00 inches or rose above 30.20 inches and that, for such a gale like this, he never so the barometer so high (Monthly Weather Review, Sept. 1883). 33) Observationss taken at Smithville, N.C.. Sept. 10, 3 P.M., barometer 29.83 inches, wind N.E. 28 mph; 11 P.M., barometer 29.59 inches, wind N.E. 32 mph; Sept. 11, 6:10 A.M., barometer 29.17 inches, wind E. 56 mph; 6:32 A.M., barometer 29.17 inches, wind E. 66 mph; 7:00 A.M., barometer 29.18 inches, wind E. 58 mph; 7:30 A.M., barometer 29.16 inches, wind S.E. 84 mph; 8:00 A.M., barometer 29.18 inches, wind S.E. 84 mph; 8:20 A.M., wind S.E. 93 mph; 9 A.M., barometer 29.19 inches, wind S.E. 86 mph; 9:15 A.M., barometer 29.22 inches, wind S.E. 76 mph; 9:30 A.M., barometer 29.25 inches, wind S.E. 82 mph; 10 A.M., barometer 29.28 inches, wind S.E. 79 mph; 10:30 A.M., barometer 29.31 inches, wind S. 77 mph; 11 A.M., barometer 29.36 inches, wind S. 72 mph; 3 P.M., barometer 29.50 inches, wind S.W. 50 mph; 11 P.M., barometer 29.73 inches, wind S.W. 25 mph (Monthly Weather Review, Sept. 1883). 34) Sept. 11, 1883. A violent hurricane made landfall near Smithville. Maximum winds at Southport were recorded at 93 mph with gusts over 110 mph. Newspaper reports described a gale of over 80 mph that lasted for more than 7 hours. The Frying Pan Lightship was torn from his anchors and came ashore. The 33 passengers aboard the "City of Atlanta" survived an ordeal at sea during the hurricane (Barnes, 1995). 35) Sept. 11, 1883, Carolinas, major hurricane, 53 killed in N.C. (Dunn and Miller, 1960). 36) The observer at Smithville reported that many fences and buildings of light construction were destroyed, several houses uprooted and trees uprooted. The leaves remaining on the trees after the gale had the appearance of having been frostbitten. The rain had a saltish taste from admixture of salt being carried up and borne along the violence of the storm. Many vessels lost their moorings and drove ashore (Monthly Weather Review, Sept. 1883). 37) At Wilmington, N.C., the N.E. gale began at 3 P.M. Sept. 10, reaching 32 mph with falling barometer. On Sept. 11, the barometer read 29.41 inches and the wind changed to S.E. and attained a velocity of 39 mph (Monthly Weather Review, Sept. 1883). 38) At Ft. Macon, N.C., the wind reached 60 mph on Sept. 10, accompanied by heavy intermittent rain. On the early morning of Sept. 11, the wind changed to S.E. and continued to blow with great force; barometer 29.70 inches at 7 A.M. Sept. 11 fell slowly until 4 P.M. with a slight rise afterward; wind shifted to S.W. and the gale ended on Sept. 12 (Monthly Weather Review, Sept. 1883). 39) At Cape Lookout, N.C., the N.E. gale began in the morning of Sept. 9 and by the morning of Sept. 10 had attained a velocity of 60

mph, low clouds came from N.E. and a very high E.N.E. swell broke on the beach. From noon to 8 P.M. Sept. 10 the wind blew with an estimated velocity of 75 mph. The wind remained N.E. until 1 A.M. Sept. 11, when it shifted to S.E. and E. and blew with great violence throughout the day, accompanied by heavy rain. During the night of Sept. 11-12, the wind shifted to S.W. (Monthly Weather Review, Sept. 1883). 40) Portsmouth, N.C. The wind reached a velocity of 62 mph on Sept. 10, shifting on Sept. 11 to S.E. to E. gales which were accompanied with high tide and heavy surf that submerged the island to the depth of one foot (Monthly Weather Review, Sept. 1883). 41) After the storm reached Wilmington, a slight depression developed in the southern portion of the Middle Atlantic States and moved northward to western New York. This movement was traced by the wind direction of neighboring stations, the difference in barometric pressure being much less than one tenth of an inch (Monthly Weather Review, Sept. 1883). 42) Asbury Park, Sept. 12. It has stormed heavily along the coast the entire day (The New York Times, Sept. 13, 1883, p.5, col.5). 43) Sunset, Sept. 12: Sandy Hook, an E. gale, thick and rainy; City Island, fresh N.E. wind, cloudy (The New York Times, Sept. 13, 1883, p.8, col.7). 44) The wind at this city (New York) was steady from N.E. during the day and night. The storm left Virginia in the evening and the center was supposed to be off the New Jersey coast late last night, although the officer at the Signal Service bureau said he could not speak definitely about the gale because he did not know where it was. At 8 P.M. the wind was blowing at 28 mph and at 11:30 P.M. it was blowing at 21 mph. Maximum wind was 30 mph at 6 P.M. (The New York Times, Sept. 13, 1883, p.5, col.5).

The information contained in the above items suggested some modifications along the track for this storm which is shown in Neumann et al. (1993). The suggested modifications primarily pertained to the timing associated with the storm motion along the track rather than to large spatial deviations from the track in Neumann et al. (1993); the spatial variations which were introduced were relatively small. All modifications were restricted to the period Sept. 4-9 and the track for the period Sept. 10-13 in Neumann et al. (1993) was kept unchanged. The new 7 A.M. positions which were estimated by the author of this study are as follows: Sept. 4, 14.7 degrees N., 60.3 degrees W.; Sept. 5, 16.3 degrees N., 65.5 degrees W.; Sept. 6, 18.7 degrees N., 71.5 degrees W.; Sept. 7, 22.0 degrees N., 75.7 degrees W.; Sept. 8, 24.0 degrees N., 76.7 degrees W.; Sept. 9, 27.3 degrees N., 78.0 degrees W. The Sept. 4 position was essentially based on items 1) and 3); the Sept. 5 position was determined on the basis of items 5) and 6); the Sept. 6 position was chiefly supported by items 7) and 8), the Sept. 7 position took into account the content of items 9) through 11) as well as space-time continuity; the Sept. 8 position was primarily based on items 12) and 13); the Sept. 9 position was inferred, primarily, from information in items 17) and 18). Although the positions for Sept. 12 and 13 were among those which were kept unchanged along the track displayed in Neumann et al. (1993), information in items 42) through 44) suggested a turn towards the N.E. on Sept. 12 and, possibly, the end of the track on that day. However, the author of this study decided not to use this information on the basis of the storm uncertainties stated in item 44). He, therefore, preferred to accept positions for Sept. 12 and 13 in Neumann et al. (1993) under the assumption that they responded to a modified interpretation of item 41) in the sense that the depression mentioned in that item was the remanent of Storm 3, 1883 and not a new weather system. The author's track for the storm is displayed in Fig. 3.

The available information above was found to be insufficient to verify that, as stated in item 35), Storm 3, 1883 was a major hurricane in the Carolinas. The lowest pressure

readings that the author of this study found in relation to this storm were 28.87 inches taken by the lighthouse tender "Richmond" which was anchored near Nassau (item 13) and 28.20 inches, which was read on a very fluctuating barometer on board the "L.W. Armstrong", at St. Pierre, Martinique (item 1). Although the barometer reading of 28.20 inches corresponded to a major hurricane, the acceptance of that pressure value (obtained at Martinique and not at the Carolinas) might be questionable because of the "pumping barometer" observed.

Storm 4, 1883 (Oct. 22-28).

The following information was found about this storm: 1) Storm of Oct. 22-23, 1883. Bahamas (Tannehill, 1838). 2) Schr. "Etna". Oct. 22, lat. 33 20 N., long. 73 40 W., strong N.E. gale lasting for 30 hours (Monthly Weather Review, Oct. 1883) 3) Schr. "Mahaska", off the South Carolina coast, had a heavy N.E. gale on Oct. 22 (Monthly Weather Review, Oct. 1883). 4) Ship "Hedwig". Oct. 22, lat. 33 45 N., long. 75 34 W., barometer 30.08 inches, falling, wind E.N.E. force 3 (Monthly Weather Review, Oct. 1883). 5) Schr. "Jennie N. Huddell". Oct. 22, lat. 33 45 N., long. 77 W., barometer 30.10 inches, fresh N.E. wind (Monthly Weather Review, Oct. 1883). 6) Steamship "Edith Godden", which arrived at New York from Jamaica on Oct. 24, reported having encountered heavy N.E. gales between lat. 35 N. and Barnegat. On Oct. 23 the wind shifted from N.E. and E. to S.E. and S.; however, the barometer readings and the wind force reported did not show that the depression attained any great depth or energy (Monthly Weather Review, Oct. 1883). 7) Ship "Hedwig". Oct. 23, lat. 34 26 N., long. 74 30 W., barometer 30.02 inches, wind S.S.E. force 3, long E.N.E. swell (Monthly Weather Review, Oct. 1883). 8) Steamship "D.J. Foley". Oct. 23, lat. 32 36 N., long. 75 04 W., barometer 30.00 inches, wind S.E. force 2 (Monthly Weather Review, Oct. 1883). 9) During Oct. 23 and 24, moderate to strong N.E. gales prevailed off the New England coast (Monthly Weather Review, Oct. 1883). 10) Plymouth, Ma. Oct. 24. The hardest N.E. gale for several years has been raging here from last night (The New York Times, Oct. 25, 1883, p.1, col.7). 11) Buzzards Bay, Ma., Oct. 24. A severe N.E. gale accompanied by rain commenced here at 6 A.M. By 11 o'clock the gale had increased in severity (The New York Times, Oct. 25, 1883, p.1, col.7). 12) Long Beach, N.J. During the severe gale of Tuesday night (Oct. 23), the schooner "Eliza Jane" came ashore off Cedar Reef Creek (The New York Times, Oct. 26, 1883, p.1, col.7). 13) Provincetown, Ma. Oct. 25. A heavy N.E. gale prevailed here yesterday and last night (The New York Times, Oct. 26, 1883, p.2, col.7). 14) Ship "Hedwig". Oct. 24, lat. 35 32 N., long. 73 14 W. barometer 29.97 inches, wind N.W. by N. force 5, squally (Monthly Weather Review, Oct. 1883). 15) Steamship "D.J. Foley". Oct. 24, lat. 35 N., long. 74.40 W., barometer 29.95 inches, wind N.N.E. force 4 (Monthly Weather Review, Oct. 1883). 16) On Oct. 25, the depression was central apparently at some distance to the S. and S.E. of Nova Scotia, the pressure ranging from 29.60 to 29.70 inches (Monthly Weather Review, Oct. 1883). 17) During Oct. 26 the depression moved northeastward (Monthly Weather Review, Oct. 1883). 18) Observations taken on board the steamship "Rhaetia" in lat. 50 41 N., long. 29 20 W. on Oct. 27. 1 A.M., barometer 29.82 inches, wind W.S.W. force 4 (on a 0-10 scale); 4 A.M., barometer 29.72 inches, wind S.S.E. force 4-5; 8 A.M., barometer 29.48 inches, wind S.E. to S. force 6; noon, barometer 29.06 inches, wind W.S.W. force 6; 12:05 P.M., minimum barometer 29.03 inches, wind W. force 6; 1 P.M., barometer 29.06 inches, wind N. force 10; 2 P.M. barometer 29.07 inches, wind N. force 10; 4 P.M., barometer 29.32 inches, wind N. by W. force 9; 8 P.M., barometer 29.55 inches, wind N.N.W. force 8; midnight (Oct. 27-28), barometer 29.68

inches, wind N.W. force 6-7. According to Capt. Vogelgesand of the "Rhaetia", the wind went around to W. with heavy rain and heavy northerly swell and at 12:45 P.M. the wind suddenly hauled to N., increasing to a hurricane, sky immediately clearing. Temperature records taken by the "Rhaetia" showed that the temperature dropped from 55 degrees Fahrenheit at noon Oct. 27 to 47 degrees Fahrenheit at midnight Oct. 27-28 (Monthly Weather Review, Oct. 1883). 19) On Oct. 28, the least pressure was near lat. 55 N., long. 20 W., in which region moderate to strong W. to S. gales were reported with barometer ranging from 29.45 to 29.65 inches (Monthly Weather Review, Oct. 1883).

Based on information in items 6) through 8), the author of this study proposed a new 7 A.M. Oct. 23 estimated position near 32.0 degrees N., 77.0 degrees W. which resulted in bringing the storm much closer to Hatteras than indicated by the track shown in Neumann et al. (1993). No other modifications were introduced along the track just mentioned in spite of that the 7 A.M. Oct. 26 position is somewhat suspicious because it implies a significant deceleration and then an acceleration of the storm motion. The author's track for Storm 4, 1883 is displayed in Fig. 3.

Indications are that the core of the storm was quite weak on Oct 22-23 and that the heavy gales that were reported in several of the items above occurred far away from the central region; therefore, the effect of the storm in the Bahamas (item 1) should not have been of serious consequences. The intensification process seems to have begun on Oct. 24 and continued until Oct. 27. However, the system should have been in the process of becoming extratropical over a good portion of that period, and entirely non-tropical characteristics were inferred for the storm on Oct. 27 on the basis of the cold environment reported by the "Rhaetia" (item 18).

Although hurricane winds were reported on Aug. 27, the storm was not a tropical system at that time.